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Summary of Comment: DER Rate Design Should Account for Competition and Consumer Choice

On behalf of the Harvard Environmental Policy Initiative, I commend the Staff Subcommittee on Rate Design for creating a valuable resource for regulators and stakeholders. I also urge the Subcommittee to include in the next version: 1) a thorough examination of how deployment of DERs by consumers and non-utility companies affects utility financial performance, and 2) consideration of competition and consumer choice in DER rate design. These two topics are relevant to all regulators, regardless of whether they preside in a state that has authorized retail competition or allowed for other variations in market structure.

The draft Manual is a timely and helpful document. By summarizing a massive volume of literature and synthesizing comments from diverse interests, the Subcommittee has performed an indispensable public service. Advocates, academics, and members of the public are recognizing the importance of Public Utility Commission (PUC) proceedings, and will benefit from the draft Manual's primers on rate design and DERs. For experienced practitioners, the draft Manual is an authoritative resource that will be cited and referred to for many years to come. While the draft Manual notes that revisions to the next draft may be appropriate as circumstances warrant, I recommend that the next version include a specific timeline for periodic reviews, public comments, and updates, to ensure the Manual's continued accuracy and relevance.

The next version should also clearly and comprehensively connect DER rates to competition by disclosing that utilities have a financial interest in using rate design to impede the adoption of DERs and then discussing how regulators should account for those incentives. It should not be surprising or considered taboo that utilities, which have obligations to their shareholders, are proposing rate designs motivated by their own financial self-interest. By opening a century-old system, the growth of DERs challenges the industry's dominant technology and business models. It is not irrational for a utility to oppose this change, but it is incumbent upon regulators to distinguish, where necessary, between the private interests of a utility and the broader public interest, by ensuring that rate design reflects the best interests of consumers.

Noticeably absent from the draft Manual is any meaningful discussion of the effects of DER rate design and deployment on a utility's financial performance. The draft Manual acknowledges that utility "revenue erosion" was the impetus for recent DER rate proceedings and notes that "to the extent that DER does reduce investment in any portion of the system, this lowers the utility's rate base, and therefore the amount of return." The issue warrants deeper analysis.

Utility accounting is a fundamental aspect of PUC regulation, and regulators and stakeholders would surely benefit from a detailed review of how DER rate design and deployment affect utility balance sheets. While cost shifts and cross subsidies are valid concerns, the draft Manual overemphasizes them, rightly promoting broadly held goals but overlooking the financial incentives that must be, at least in part, motivating regulated utilities. A thorough discussion of DERs' effects

on utility financial performance would inform regulators about the true stakes of DER rate design. Exposing utility incentives would invite them to be more forthcoming about their unease over DER deployment. The next version of the Manual should include a section devoted to this topic.

Once that issue is fully investigated, I recommend that the Manual also discuss how the DER rate design process must fairly consider the interests of consumers and competitive suppliers while also ensuring that the resulting rates do not unreasonably stifle competition. The legal standard at the heart of regulation is sufficiently flexible to allow for these assessments. It acknowledges the tension between ratepayer and utility interests and requires regulators to balance often competing concerns.^a Given the growing consumer interest in DERs and ongoing technological development, regulators should include ratepayers that have deployed DERs and DER providers among the interests that must be balanced when considering a proposed rate design.

While rate design need not unjustly subsidize any particular business model or technology, it also must not unduly discriminate against particular ratepayers or competitive suppliers. The prohibition against undue discrimination is rooted in concerns about a utility exercising monopoly power. As DERs offer new possibilities for energizing and balancing the grid, potentially at the expense of utility interests, PUCs must be increasingly vigilant in guarding against such abuses. The longstanding prohibition against undue discrimination compels regulators to scrutinize rate design for exclusionary or anticompetitive effects.

Professor Alfred Kahn summarizes that “[t]he essence of regulation is the explicit replacement of competition with governmental orders as the principal institutional device for assuring good performance.”¹ In the absence of competition, regulation disciplines price, but it may fail to achieve other results of competition. Scott Hempling explains that “whether competition . . . is effective depends on one’s goals,” which can include “innovations and breakthroughs, product quality and diversity, [and] different allocations of risk and reward.”² The prohibition against undue discrimination is a tool for facilitating such competition. Regulation generally, and rate design in particular, should foster innovative approaches that are consistent with the public interest, as a competitive market should, rather than shield incumbents from competitive pressures.

The remainder of this comment is organized around three related topics that I suggest be covered in the next version of the Manual:

1. Utilities have a financial interest in impeding the growth of third-party owned DERs.
2. Rate design must account for competition and consumer choice.
3. The prohibition against undue discrimination can guide efforts to account for competition and consumer choice.

The final section applies the prohibition and is divided into four recommendations that I propose be included in the next version of the Manual. PUCs should: 1) analyze the magnitude and direction of cross subsidies; 2) gradually implement new DER rates; 3) investigate DER Rate Design and other DER issues outside of a rate case, and 4) ensure access to proceedings and data.

^a FPC v. Hope Nat. Gas Co., 320 U.S. 591, 603 (1944) (“fixing ‘just and reasonable’ rates involves a balancing of the investor and consumer interests”).

Utilities Have a Financial Interest in Impeding the Growth of Third-Party Owned DERs

As the draft Manual recognizes, “traditional utility and regulatory models [are] built on the assumption of the utility providing enough electricity to meet the entire needs of its service territory.” Widespread deployment of DERs by consumers and third parties is at odds with this fundamental assumption and with the cost-of-service model that has governed the industry for more than a century. A National Renewable Energy Laboratory report summarizes that “under traditional cost-of-service regulation, [DERs] tends to erode utility financial performance via reductions in sales growth and deferral of traditional utility capital investments.”³

The nature of the competition between utilities and DERs may depend on market structure and precise ratemaking approaches. For a vertically integrated utility regulated under traditional cost-of-service ratemaking, DERs compete directly for utility revenue from energy sales. Lower sales volumes may also reduce opportunities for a utility to add to its rate base with new generation and other investments. A distribution utility with decoupling may be indifferent in the short-term to its total sales, but as an Edison Electric Institute (EEI) publication highlights, cost “recovery paradigms that force cost of service to be spread over fewer units of sales enhance the ongoing competitive threat of disruptive alternatives,” like DERs.⁴ As the costs of DERs continue to fall and consumer adoption grows, utilities may feel compelled to shield themselves from further losses of customer load and could rely on discriminatory DER rate structures as defensive mechanisms.

Decoupling also does not address lost earnings opportunities resulting from the deferral of utility capital investments in both state-regulated distribution infrastructure and federally regulated transmission facilities. Non-traditional solutions owned or operated by third parties, such as demand response and energy storage, can substitute for traditional utility-owned rate-based distribution infrastructure.⁵ In addition, transmission-owning utilities may lose opportunities to earn a regulated rate-of-return on new transmission investments if DERs reduce the need for new transmission.⁶ In particular, DERs that generate renewable energy could reduce the need to move renewable energy that is procured by a utility to meet state policy goals on the bulk power system.

Absent fundamental reforms to cost-of-service ratemaking,⁷ a utility may reasonably view DERs as a competitive threat.^b Although the financial impact of DERs is currently minimal, utilities may be proposing rates today to blunt DERs’ potential growth.⁸ The mismatch between the dominant cost-of-service regulatory paradigm and growth in DERs raise a concern that utilities are acting anti-competitively. DER providers have voiced this complaint. As the CEO of SolarCity recently explained to the National Conference of State Legislatures, “some utilities . . . [are] willing to embrace the change. Other utilities don’t see it, and want to fight the change.”⁹

^b Even if a utility’s incentives are aligned at the state level with DER deployment, a utility may nonetheless oppose DERs. In 2015, two Maryland Commissioners dissented from the PSC’s approval of a merger application at least in part because they believed that the utility company had mixed allegiances. They explained that the company’s “economic interests to shield [its] fleet [of independent power producers] from emerging distributed energy technologies and other competitive threats are inherently misaligned with the interests of the customers of Pepco and Delmarva, [the distribution utilities it is purchasing] who are predominantly concerned with efficient, cost-effective and reliable electric service.” In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc. Maryland Public Service Commission (No. 9631) (Md. Pub. Serv. Comm’n, May 15, 2015) (Commissioners Hoskins and Williams, dissenting).

The next version of the Manual should examine the connection between cost-of-service ratemaking and utility incentives to oppose DER deployment in greater depth than this brief overview. In 2013, EEI was forthcoming about the “disruptive challenges” posed by DERs, stating that they will increase “uncertainty and risk,” which “will not be welcomed by investors who will seek a higher return on investment.” That 2013 document instructs member utilities to use the ratemaking process to “normalize [the] competitive threat.”¹⁰ Yet, utilities rarely make such arguments in DER rate design proceedings. Instead, they typically appeal to the broadly accepted goal of “fairness” in utility rates, obscuring the fact that “revenue erosion” is the overriding concern that brought them to the table. Glossing over that fact in the Manual does a disservice to regulators and the public.

Delving into these details in the Manual will illuminate the tensions between utilities and DER providers and help regulators develop rate designs and utility incentive structures that balance the often-competing interests. Examples of relevant studies on utility financial performance with higher DER deployment include: a Lawrence Berkeley National Lab paper that quantifies the impacts of rooftop solar adoption on shareholder earnings and return on equity of two prototypical utilities,¹¹ and a paper by a policy firm that examines three scenarios in which utilities prefer more expensive solutions over deploying DERs because ratemaking practices allow them to earn greater returns by deploying their own capital.¹² Such studies illustrate the general point that current regulatory structures often put utilities at odds with DER deployment. While it may be beyond the scope of the Subcommittee’s mission to explore new utility business model opportunities, the topic of current utility incentives is essential to understanding DER rate design options.

DER Rate Design Must Account for Competition and Consumer Choice

Antitrust law and public utility law each provide a legal justification for considering the effects of DER rate design on ratepayers with DERs and on DER providers. The recent interest of the Department of Justice and Federal Trade Commission in DER rates, as well as ongoing litigation about DER rates filed in federal court in Arizona, illustrate that federal agencies, consumers, and DER providers could turn to antitrust law to address DER rates that they believe are anti-competitive. PUCs may be able to blunt the potential of an antitrust lawsuit by addressing the effects on competition in DER rate design decisions. PUCs should make that assessment by employing traditional principles of public utility law and need not apply antitrust law.

The long-standing prohibition under state law against undue discrimination in utility rates provides both an additional legal justification for addressing competition as part of the DER rate design process and a policy mechanism for ensuring that rate design is fair to ratepayers with DERs and to DER providers. This core ratemaking principle is premised on preventing anti-competitive practices, such as favoring a particular ratepayer, and was initially enacted to prevent the exercise of monopoly power.¹³ Leveling the playing field for DERs is consistent with the purpose, history, and legal principles of PUC regulation.

The connection between discrimination and the economic self-interests of monopolist utilities was a key component of FERC’s argument to advance competition in wholesale generation in the 1990s. A PUC could similarly conclude that discriminatory tariffs impose undue barriers on DER providers and therefore must be remedied. Apart from such industry-wide concerns, a PUC must also ensure

that specific rate designs are not unduly discriminatory. Cost causation is often invoked as a defense against claims of unduly discriminatory rates, but as a practical matter, cross subsidies and cost shifts are unavoidable and widespread. In that context, invoking the principle of cost causation cannot be sufficient to shield a rate design from scrutiny under the prohibition against undue discrimination.

Antitrust Law

The overarching objective of federal antitrust law is to protect consumers.¹⁴ Previous antitrust allegations under federal law against utilities relating to their retail electric service have been styled as unreasonable restraints of trade,¹⁵ attempts to monopolize,¹⁶ and illegal exclusive dealing arrangements.¹⁷ It is beyond the scope of this comment to speculate on allegations that could be made in the future about DER rate design, but a complaint filed in 2015 against an Arizona utility over its rooftop solar rates (discussed below) broadly captures possible themes. The rooftop solar installer alleges that a new rate structure is designed to “exclude competition” and “destroy the competitive threat” presented by rooftop solar providers in order to “unlawfully maintain [the utility’s] monopoly over the retail sale of electricity.”¹⁸

Federal antitrust attorneys at the Department of Justice (DOJ) recently weighed in on the side of SolarCity in this case. A central legal issue in any antitrust enforcement action will be whether DER rates are shielded from antitrust action by state policy. Under the “state action doctrine” a court will find antitrust immunity when an anticompetitive practice is “clearly articulated and affirmatively expressed as state policy” and that policy is “actively supervised” by the State itself.¹⁹ Filing an amicus brief in support of SolarCity in the Ninth Circuit Court of Appeals, DOJ urged the court to reject the application of the state action doctrine because Arizona had not “clearly articulated” a policy to displace competition. DOJ also argued that the “state action doctrine is disfavored as a defense, and construed narrowly, because it conflicts with the fundamental national policy in favor of competition.”

SolarCity’s lawsuit is an interesting test case for applying antitrust law to DER rates because the respondent utility’s rates are not regulated by the state’s PUC. If SolarCity wins the legal argument about the first prong of the state action doctrine and proves that Salt River Project’s conduct is anti-competitive in violation of antitrust law, its victory may pave the way for a subsequent case against a rate-regulated utility. The litigant in that case will likely have to address whether a PUC’s approval of rates constitutes “active supervision” under antitrust law.

Stanford Law School Professor Michael Wara recently argued that Supreme Court precedent is unclear on whether PUC approval of a utility’s rate design constitutes “active supervision” and would therefore shield a rate design from antitrust action.²⁰ Professor Wara writes that “courts might assess whether or not a PUC supervising electric utility conduct with potentially anti-competitive impacts on rival firms has evaluated the impacts of that conduct on those rivals.” He suggests that PUCs can “act proactively to reduce antitrust risk” by “explicitly analyzing impacts on DER providers of material changes in rates or other practices.”

Professor Wara further explains that antitrust concerns need not dominate over other legitimate goals of ratemaking. However, PUCs should be particularly wary of utility-proposed DER rates

premised on studies that allocate costs in an anticompetitive fashion. According to Professor Wara, “an antitrust violation would only occur if the utility went so far as to unfairly distort the allocation of grid costs to further an anti-competitive purpose.” If the PUC approves those rates without at least assessing their impact of those rates on utility competitors, the rates may be more vulnerable to an antitrust action.

Antitrust regulators at the Federal Trade Commission (FTC) are monitoring these developments. On June 21, 2016, the FTC hosted a workshop about distributed solar that included a session exploring competition between utilities and solar providers. In a memo released prior to the meeting, FTC staff observed that DER “rate reform may be a disguised effort by utilities to make solar distributed generation (DG) less desirable relative to the status quo, thereby minimizing solar DG as a competitive threat.”²¹ The staff memo requested comment on whether regulatory policies erect barriers to entry, whether there is a role for antitrust enforcement or competition advocacy, and whether antitrust enforcement is “an appropriate tool to police efforts by utilities to maintain or strengthen regulatory barriers to entry from solar DG firms?”

The Prohibition against Undue Discrimination

Apart from antitrust considerations, the longstanding prohibition under state law against unduly discriminatory rates at least allows and may compel PUCs to consider the effects of DER rate design on competition and consumer choice. This prohibition is historically rooted in concerns about a utility’s anticompetitive practices, such as reduced rates to its preferred customers.²² Professor Bonbright explains that unlike a firm operating in a competitive market, a monopolist has the power to maintain price differentials among consumers, and would find it profitable to exercise that power if it could charge different rates based on customer elasticities of demand.²³ Bonbright highlights that “public utilities, save when constrained by regulation or by public opinion, are in an especially favorable position to profit by this practice because of their monopoly status.”

Traditionally, regulated rates are considered unduly discriminatory if they do not reflect the costs of serving those ratepayers.²⁴ The inquiry has historically been contract-specific; a utility is prohibited from charging a price to one ratepayer and a materially different price for the same service to a different ratepayer. In the mid-1990s, FERC broadened the scope of its undue discrimination analysis at the wholesale level to industry-wide anticompetitive practices. FERC explained that “[d]ue to changing conditions in the electric utility industry, e.g., the emergence of non-traditional suppliers and greater competition in bulk power markets, the focal point of claims of undue discrimination has changed from discrimination in the treatment of different customers to discrimination in the rates and services the utility offers third parties when compared to its own use of the transmission system.”²⁵ Using its authority to remedy undue discrimination, FERC required transmission-owning utilities to provide third parties with access to transmission on the same or comparable basis as the utility’s uses of its system.^c

Extending the application of the prohibition against undue discrimination under state law to DER

^c See SCOTT HEMPLING, REGULATING PUBLIC UTILITY PERFORMANCE: THE LAW OF MARKET STRUCTURE, PRICING AND JURISDICTION, section 4.B.3 (2013) for discussion of how the prohibition against undue discrimination facilitated similar reforms in the natural gas and telecommunications industries.

providers is consistent with FERC's approach. FERC's open-access remedy benefited entities, such as non-utility generators, that did not yet have customer relationships with transmission-owning utilities. Only once FERC mandated open access could these new entities then become transmission customers. So too, DER providers may currently be blocked from becoming utility customers by unduly discriminatory rate designs and practices that prevent them from providing grid services.

A PUC could conclude, as FERC did, that utilities that own and operate the distribution system "possess substantial market power; that, as profit maximizing firms, they have and will continue to exercise that market power in order to maintain and increase market share, and will thus deny their [] customers access to competitively priced electric generation; and that these unduly discriminatory practices will deny consumers the substantial benefits of lower electricity prices."²⁶ With those conclusions, a PUC would be compelled to assess the effect of regulation on utility rivals that can provide products and services on the distribution grid and on the ability of consumers to access those products and services.

If reaching such a sweeping, industry-wide conclusion is beyond a PUC's legal authority or is not supported by the record in a particular state, a PUC must take a more targeted approach to remedying undue discrimination. In recent cases, utilities have typically defended their proposed DER rate designs on the grounds that they are aligned with the utility's costs and are therefore economically efficient. While equating cost causation with efficiency may be true as a matter of economic theory, setting rates at marginal cost is neither practical nor does it eliminate substantive and procedural concerns about undue discrimination.

Under cost-of-service regulation, a utility is typically reimbursed for all incurred costs, including fixed costs, some of which may be sunk. Rates based exclusively on marginal costs will not be sufficient to recover these past investments.²⁷ As NARUC's Cost Allocation Manual puts it, "marginal cost-based prices will yield the utility's allowed revenue requirement based on embedded costs only by rare coincidence."²⁸ Chasing perfect cost causation is an unrealistic standard that is not met in actual rate design.

Moreover, it is widely recognized, by the draft Manual, economists, PUCs, and state and federal courts, that cost allocation is an exercise in false precision.²⁹ Cost allocation studies presented in utility rate cases are sponsored by parties with financial interests in the outcome of the proceeding. Naturally, each study reflects the financial goals of its sponsor. Each participant in the proceeding hires expert witnesses whose methods and conclusions are aligned with its interests. And just as each participant's lawyers zealously advocate their client's position before the PUC, so too, engineers and economists may fine-tune their results to meet client objectives. The competing positions often reflect long-standing disputes among economists and ongoing debates about the assumptions and data necessary to compute marginal costs.³⁰ As Professor Bonbright points out, there is no "objective standard of rationality" for resolving these disputes,³¹ which allows parties to advocate for contradictory cost allocation principles and methods. Thus, even if precisely aligning rates with cost causation was an achievable end, the means for doing so are hotly contested.

Fortunately, a PUC need not choose a particular cost allocation. Rather, the goal of regulation is to find a balance among often competing interests. To do so, PUCs begin with cost causation but

typically invoke other principles that aim to serve the long-term public interest.³² Remedying undue discrimination is fundamental to rate design, and the prohibition can be applied broadly throughout the DER rate design process.

In these rate design proceedings, the utility enjoys enormous competitive advantages. It generates the essential data, both through its own managerial decisions that inform actual expenditures, and by virtue of its ownership of key customer and system data. The utility is able to exploit these advantages by framing the rate design debate around its initial proposal filed with the PUC. These advantages confer another; as the entity that actually incurs the costs and has experience operating the system for a century, its cost allocation and rate proposal are eminently credible. Yet, its obvious incentives to maintain those advantages should render a skeptical response.

Of course, regulators may have valid, non-discriminatory policy reasons for opting for a utility's proposed rate design. Courts generally recognize that ratemaking is a "legislative function" and PUCs have great latitude in setting goals for rate design and approving rates that meet those goals, provided that the PUC's decision is based on the record.³³ Nonetheless, the legal question of whether a rate is unduly discriminatory is still relevant, and the answer must be based on the facts of each case. As Professor Wara explains in the antitrust context (see above), a rate design premised on a distortionary cost allocation intended to further an anticompetitive purpose should be subject to heightened scrutiny.

Alternative cost allocations submitted by other parties as well as critiques of the utility's methods could provide evidence that the utility's cost allocation is distortionary. However, because cost allocation is subjective and the utility controls the data, it may be difficult to demonstrate when a cost allocation is defensive and distortionary. Additional evidence, such as the utility's other rate designs, may buttress the case that a utility is discriminating against DERs. For example, the flat rates paid by the vast majority of ratepayers include numerous cross subsidies, related to consumption patterns, population density, geography, and other factors.³⁴ Ahmad Faruqui has pointed out that flat rates create a cross subsidy flowing from consumers that have flatter-than-average load profiles to those that have peakier-than-average load profiles that "over a period of time, can run into the billions of dollars."³⁵ Cost shifts due to DER are far smaller.³⁶

Rate designs that purport to remedy a relatively insignificant cost shift due to DERs while leaving in place cost shifts that are orders of magnitude larger are blatantly discriminatory. The prohibition against undue discrimination compels regulators to reach a reasoned decision about why rate designs may discriminate against DER ratepayers and providers in this fashion. It also obliges regulators to ensure that the rate design process is fair and mitigates the numerous advantages that a utility has.

The prohibition against undue discrimination provides a regulatory tool that has legal roots in the history and purpose of PUC regulation. Complete monopoly control was once the industry's dominant regulatory and business model. Over the past several decades, segments of the industry have operated within a framework of tightly controlled competition that is bound by the prohibition against undue discrimination. By compelling a level playing field throughout the

regulatory process, the prohibition provides an opportunity under existing law to open additional segments of the industry to competition.

The Prohibition against Undue Discrimination Can Guide Efforts to Account for Competition and Consumer Choice

The prohibition against unduly discriminatory rates provides an overarching principle for realigning regulation with today's economic and technical realities and ensuring that it is able to match future possibilities. Application of this long-standing prohibition does not compel a particular DER rate design or any specific substantive outcome. This section provides a few examples for inclusion in the next version of the Manual of how remedying undue discrimination can guide DER rate design efforts and reform of related PUC practices and procedures.

Analyzing the Magnitude and Direction of Cross-Subsidies

As discussed above, cross subsidization is a feature, and not a flaw, of utility rates and is certainly not unique to DERs.^d PUCs have addressed subsidies that directly benefited a minority of ratepayers, ostensibly at the expense of other ratepayers, by evaluating the effect of the subsidies on the utility system as a whole. When regulators concluded that benefits outweighed costs, they allowed the subsidies. Ignoring one side of the cost-benefit equation with regard to DERs marks a departure from how regulators have approached this issue in the past. Moreover, investigating only the short-term costs of DERs while ignoring their benefits unduly discriminates against DERs.

Two examples illustrate how PUCs used cost-benefit analyses to rationalize cross subsidies. First, in the 1960s and 1970s utilities offered discounts and incentives to encourage people to heat their homes and cook their meals with electricity and to induce builders to construct homes wired for increased consumption.³⁷ Competing oil and natural gas distributors complained to PUCs that utilities were charging them and all other existing ratepayers the costs of the subsidies, which rendered those rates unduly discriminatory. Second, beginning in the late 1970s and continuing until today, utilities have offered a variety of energy efficiency programs. One ongoing concern is that ratepayers who do not participate in the program are subsidizing participants' energy savings and could see higher bills. This problem was initially dubbed the "paradox of conservation."³⁸

PUCs rationalized both promotional and conservation incentives on the grounds that they benefited all ratepayers by reducing utility system costs, even though direct benefits flowed to only a few ratepayers. When utility costs were declining in the 1960s, PUCs generally concluded that promotions aimed at increasing sales would reduce per-unit costs, particularly when incentives were aimed at encouraging off-peak consumption.^e For energy efficiency programs, regulators

^d The rhetoric around DER rate design often ignores the pervasiveness of cross subsidies. For example, Warren Buffet recently said that "[w]e do not want the nonsolar customers [in Nevada], of whom there are over a million, to be subsidizing the 17,000 solar customers." The implication is that Mr. Buffet viewed other cross subsidies that are embedded in his utility's rates differently. Jeff Brady, "Nevada Solar Business Struggles to Keep the Lights On," National Public Radio (Mar. 11, 2016), <http://n.pr/1TTtJbY>.

^e It seems likely that homes receiving subsidies consumed more energy throughout the year, and not just during off-peak seasons. For example, homes with electric heat often used electricity for cooking and heating water, and some also included connections for more electrical appliances and lighting. The Department of Energy's first Residential Energy Consumption Survey, conducted in 1979, found that homes with electric

developed cost-benefit tests that they applied to potential programs to determine whether they were cost effective and worth pursuing. For instance, the Total Resource Cost (TRC) test compares the full value of avoided energy due to efficiency with the full cost of the efficiency measures plus all program costs. This test does not determine that there are no cross subsidies between individual ratepayers. Instead, it tests whether ratepayers (or society) as a whole benefit from the program. Advocates for efficiency and utilities that once argued for subsidies that encourage electricity consumption have insisted that cross-subsidization was a red herring, and the key regulatory concern was whether or not the utility system benefited.

PUCs can begin a DER rate design process with a cost-benefit analysis to determine whether or not DERs add value or cost to the utility system. In its preliminary comments to the Subcommittee, the Edison Electric Institute acknowledges that the “electric system benefits (e.g. cost savings) attributable to DG can include energy, capacity, transmission and distribution (T&D) system deferral, and line loss reductions, as well as environmental and other benefits as assessed in each jurisdiction.³⁹ Analyzing these benefits will not only quantify the direction and magnitude of any cross subsidy but can help identify the most beneficial opportunities for DER deployment.⁴⁰

The draft Manual observes that measuring these benefits is difficult because doing so “often require subjective judgments.” This challenge is not unique to DERs. All cost allocation studies, whether used to set rates or to evaluate energy efficiency programs, are subjective. The 1992 NARUC Cost Allocation Manual observes that “opinions vary on the appropriate methodologies to be used to perform cost studies and “individual costing methodologies are complex and have inspired numerous debates on application, assumptions and data.”⁴¹ Professor Bonbright similarly wrote three decades earlier that there are “notorious disagreements among the experts as to the choice of the most rational method of overhead-cost allocation—a disagreement which seems to defy resolution because of the absence of any objective standard of rationality.”⁴²

Gradually Implementing New DER Rates

Sudden and steep changes in utility rates have dramatic effects on ratepayers. One of Bonbright’s core ratemaking principles recommends “stability of the rates themselves, with a minimum of unexpected changes seriously adverse to existing customers.”⁴³ Consistent with this principle, PUCs often phase-in rate increases gradually. It would be unduly discriminatory to generally phase-in those rate increases while allowing for sudden changes to DER rate designs.

Two recent examples illustrate the harm to ratepayers and to competition of abrupt changes in DER rate design. In February 2015, Salt River Project, whose rates are not regulated by the Arizona commission, approved a new rate design for DERs that a local newspaper assessed at approximately \$50 of new charges per month for a ratepayer with rooftop solar.⁴⁴ The new charges were implemented retroactive to December 2014. As discussed above, SolarCity filed a lawsuit in federal court that asserts SRP used “its monopoly power to eliminate rooftop solar competition” by “punishing customers who deal with such competitors” as SolarCity.⁴⁵ In

heating also consumed two to three times more electricity for air conditioning as compared to other homes. In total, these homes used nearly three times as much electricity. This “spillover effect” was often ignored, and would certainly be difficult to measure and account for in designing promotional rates.

December 2015, the Nevada PUC approved reduced rates for solar customers and initially applied the new rates to customers that already installed a solar system.⁴⁶ While the PUC phased in the new rates over four years, the final rate design tripled the monthly fixed charge and reduced the excess energy credit by 76 percent.

There is no single formula for gradually phasing in new DER rates, but according to Ahmad Faruqui gradualism “reflect[s] the long-term nature of investment in end-use electrical equipment, and the fact that such investment was made based on reasonable expectations about future tariffs.”⁴⁷ Under Faruqui’s principle, applying gradualism to DER rate design would account for ratepayers’ expected payback periods.

Gradualism should also account for the effects of DER rate design on non-utility companies providing DER products and services. Retroactively imposing large fees is punitive to those companies. Gradually phasing in new rate designs over several years provides those companies with opportunities to adjust or to make plans for a reasonable withdrawal from the market.

Investigating DER Rate Design and Other DER Issues Outside of a Rate Case

DER rate designs are often contested in utility rate cases. Constrained by decades of past practice and legal precedent, a rate case is designed to scrutinize the utility’s measure of its costs and its allocation of those costs among ratepayer classes. A utility is able to exploit both an information asymmetry⁴⁸ and the subjective nature of cost allocation by molding a cost-of-service study to meet its own goals. The utility’s study anchors the proceeding, and groups that oppose the rate proposal must react to the utility’s framing of the issues. This format may generally still be appropriate, but its structure provides the utility with several opportunities to unduly discriminate against ratepayers with DERs and DER providers.

Investigating DER rates and other DER issues in a separate proceeding could allow DER proponents to frame the issues, rather than being forced to react to IOU proposals. It could provide for consideration of long-term costs and benefits and not just short-term utility costs, treat DERs as service providers rather than service takers, and focus on providing value to ratepayers. Such proceedings could include a range of DER issues, such as establishing non-discriminatory terms and conditions for access to the distribution system and identifying the most beneficial opportunities for DER deployment.

A collaborative, open process, as compared to an adjudicated adversarial case, that encourages parties to share data and calculations can better illuminate the costs and benefits of DERs and lead to better decision making. The outcomes of such a proceeding could then be inputs into a resource planning docket or subsequent rate case. The proceedings could be grounded in the principle of cost causation, but a PUC could also take a broader perspective that seeks to accommodate or even facilitate the long-term growth of innovative DER products and services. Setting DER rates based exclusively on short-term utility costs is a process designed to hamstring DER deployment and erects procedural barriers that prevent DER providers from justifying their entry.

Ensuring Access to Proceedings and Data

A rate design may be unduly discriminatory if it is premised on discriminatory procedures. PUCs should evaluate intervention and data sharing policies to ensure that relevant parties can meaningfully participate in rate design and other DER-related proceedings.

In many states, intervention rules are “within the sound discretion of the Commission.”⁴⁹ While PUCs typically grant intervention requests, there are several recent examples of DER providers either being entirely denied the opportunity to participate or granted limited participant status.⁵⁰ Allowing DER providers to fully participate could alleviate concerns about utilities’ numerous procedural advantages and assist regulators in their decision making. For example, DER providers are particularly well-suited to test utility forecasts about DER deployment and assumptions about DER capabilities. Allowing DER providers to propound discovery requests on such issues can help bring additional clarity to these issues.

Perhaps the utility’s most significant advantage in these proceedings is that it generates, owns, and controls essential data about consumer usage and system conditions. Monopolizing this data hampers competition and inhibits efficiency, yet sharing this data raises a host of legal concerns, ranging from privacy to security.⁵¹ Identifying the limits of current legal authority may be an important first step and could prompt statutory or other reforms.⁵²

ENDNOTES

¹ ALFRED E. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS*, VOL. 1 20 (1970).

² SCOTT HEMPLING, *REGULATING PUBLIC UTILITY PERFORMANCE: THE LAW OF MARKET STRUCTURE, PRICING AND JURISDICTION* 118–122 (2013).

³ Galen Barbose et al. National Renewable Energy Laboratory, *On the Path to SunShot: Utility Regulatory and Business Model Reforms for Addressing the Financial Impacts of Distributed Solar on Utilities* (May 2016), <http://www.nrel.gov/docs/fy16osti/65670.pdf>; see also New York Public Service Commission, *Order Adopting a Ratemaking and Utility Revenue Model Policy Framework*, Case 14-M-0101 (May 19, 2016) (“Under traditional ratemaking, DERs encounter twin barriers: they displace the growth of utility rate base, and they add to operating expenses. After rates are set under a traditional rate plan, if a utility has a choice between an operating expense and a capital solution, it will tend to favor the capital solution.”); Mark Newton Lowry and Tim Woolf, *Performance-Based Regulation in a High Distributed Energy Resources Future* (Jan. 2016), <http://www.synapse-energy.com/sites/default/files/performance-based-reg-high-der-future.pdf> (explaining that DERs can reduce opportunities for utilities to grow rate base and that cost trackers, such as those for fuel and purchase power, weaken utility incentives to embrace DER solutions because the utility automatically recovers those costs and therefore has no incentive to reduce those expenses, and concluding that “utilities under traditional regulation have a material disincentive to accommodate DERs, even when DERs meet customer needs at lower cost than traditional grid service”).

⁴ Peter Kind, Edison Electric Inst., *Disruptive Challenges: Financial Implications and Strategic Responses to a Changing Retail Electric Business* (2013), <http://www.eei.org/ourissues/finance/documents/disruptivechallenges.pdf>.

⁵ See, e.g., New York Public Service Commission, *Order Granting Rehearing and Granting Application in Part*, Case 14-E-0302 (Apr. 20, 2015); See Dan Aas and Michael O’Boyle, *You Get What You Pay For: Moving Toward*

Value in Utility Compensation (June 2016), http://americaspowerplan.com/wp-content/uploads/2016/08/2016_Aas-OBoyle_Reg-Alternatives.pdf.

⁶ See, e.g., Julie Pyper, “Californians Just Saved \$192 Million Thanks to Efficiency and Rooftop Solar,” GreenTechMedia (May 31, 2016), <http://www.greentechmedia.com/articles/read/Californians-Just-Saved-192-Million-Thanks-to-Efficiency-and-Rooftop-Solar> (reporting that the CAISO’s transmission plan cancelled 13 transmission projects that would have cost \$192 million and quoting a utility executive who said that due to energy efficiency and rooftop solar had led to flatter load than expected, which rendered the proposed transmission lines unnecessary).

⁷ See Dan Aas and Michael O’Boyle, You Get What You Pay For: Moving Toward Value in Utility Compensation (June 2016), http://americaspowerplan.com/wp-content/uploads/2016/08/2016_Aas-OBoyle_Reg-Alternatives.pdf (exploring regulatory models that align utility profit with societal value under scenarios in which traditional, utility-owned, capital solutions may not be optimal for customers).

⁸ Barbose, *supra* note 3, at 6 (“Concerns expressed by some utilities may be more anticipatory in nature”); On the Path to Sunshot, *supra* note 3, at 6; Andrew Satchwell, et al., *Impacts of Net-Metered PV on Utilities and Ratepayers: A Scoping Study of Two Prototypical U.S. Utilities*, Sept. 2014, <http://emp.lbl.gov/sites/all/files/lbnl-6913e.pdf> (modeling financial performance of two prototypical utilities and finding that with 10 percent of demand met with rooftop solar utility earnings fell by as much as forty percent).

⁹ Jeffrey Tomich, “ComEd’s ‘Revolution in Pricing’ Shifts Focus to Future Energy Market,” Energywire (Aug. 9, 2016), <http://www.eenews.net/energywire/2016/08/09/stories/1060041354>.

¹⁰ Kind, *supra* note 4, at 5 and 6.

¹¹ Satchwell, *supra* note 8.

¹² See Aas, *supra* note 7.

¹³ See Joel Eisen, FERC’s Expansive Authority to Transform the Electric Grid. 49 U.C. DAVIS L. REV. 1783, 1799-1802 (tracing the prohibition to turn-of-the-century railroad regulation and summarizing that early cases understood discrimination to refer to unlawful practices or advantages).

¹⁴ John B. Kirkwood and Robert H. Lande, The Fundamental Goal of Antitrust: Protect Consumers, Not Increasing Efficiency, 84 NOTRE DAME L. REV. 191 (2008).

¹⁵ Petition for a Writ of Certiorari of Lawrence Cantor, U.S. Supreme Court Docket 75-122 (Nov. 20, 1975); Washington Gas Light Co. v. Virginia Elec. & Power Co., 438 F.2d 248 (4th Cir. 1971).

¹⁶ Petition for a Writ of Certiorari of Lawrence Cantor, U.S. Supreme Court Docket 75-122 (Nov. 20, 1975).

¹⁷ Petition for a Writ of Certiorari of Lawrence Cantor, U.S. Supreme Court Docket 75-122 (Nov. 20, 1975); Washington Gas Light Co. v. Virginia Elec. & Power Co., 438 F.2d 248 (4th Cir. 1971); SolarCity v. Salt River Project, N.D. Ariz., Case 15-CV-00375 (Mar. 2, 2015).

¹⁸ SolarCity v. Salt River Project, N.D. Ariz., Case 15-CV-00375 (Mar. 2, 2015).

¹⁹ Cal. Liquors Dealers v. Midcal Aluminum Inc., 445 U.S. 97, 105 (1980).

²⁰ Michael Wara, Competition at the Grid Edge: Innovation and Antitrust Law in the Electricity Sector. NYU ENVTL. L. J. (2016), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2765502.

²¹ Federal Trade Commission, Announcement Notice, Something New Under the Sun: Competition and Consumer Protection Issues in Solar Power, available at: <https://www.ftc.gov/system/files/attachments/press-releases/ftc-workshop-will-examine-competition-consumer-protection-issues-rooftop-solar-business/160412solarworkshopnotice.pdf>.

²² See Eisen, *supra* note 13.

²³ JAMES C. BONBRIGHT, PRINCIPLES OF UTILITY RATES, 373 (1961).

²⁴ Kahn, *supra* note 1, at 63 (“The rule that individual rates not be unduly discriminatory similarly has been defined in terms of the respective costs of various services.”). See also, e.g., *Re Kan. Power & Light Co.*, 1975 WL 410470, No. 102,560-U (Feb. 26, 1975) (Kan.S.C.C.) (“We define undue discrimination as being that which is not justified by differences in cost of service, operating divisions, or other such considerations. We subscribe to the philosophy of uniform rates for the same standard of service as is practical and as is justified by the cost incurred in the furnishing of such service. Simple fairness demands that each customer of the utility pay his own way. To charge for service in such a way as to compel one customer to pay for another’s service is discriminatory . . .”).

²⁵ Am. Electric Power Serv. Corp., 67 FERC ¶ 61,168, 61,490 (1994) (citing *New England Power Pool*, 67 FERC ¶ 61,042 (1994)).

²⁶ Notice of Proposed Rulemaking: Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 60 Fed. Reg. 17662, 17665 (Apr. 7, 1995).

²⁷ Lee S. Friedman, The Importance of Marginal Cost Electricity Pricing to the Success of Greenhouse Gas Reduction Programs. 39 ENERGY POLICY, 7347 (Nov. 2011); Frank Weston, The Regulatory Assistance Project, Charging for Distribution Utility Services: Issues in Rate Design, at 26–28 (2000).

²⁸ Electric Utility Cost Allocation Manual, Natl. Ass’n of Regulatory Util. Comm’r, at 14 (1992) (NARUC Cost Allocation Manual).

²⁹ Ari Peskoe, Unjust, Unreasonable, and Unduly Discriminatory: Utility Rates and the Campaign Against Rooftop Solar, THE TEXAS J. OF OIL, GAS, AND ENERGY LAW (2016),

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2735789, at Part II.B.

³⁰ See NARUC Cost Allocation Manual, *supra* note 28, at 110 and Bonbright, *supra* note 23, at 318–320 for discussions of long-term and short-term marginal costs; Re Madison Gas & Electric Co., P.U.R.4th 28, 59 (Wis. P.S.C. 1974) (Padrutt, Commissioner, dissenting) (“LRIC introduces something other than known measurable costs whose ascertainment is consequently dependent upon someone’s judgment. ‘Whose judgment?’ one may inquire and thus concomitantly raise the question of the subjectivity of the judgment. One suspects the answer would vary with the judgment and given the opinion of a hundred different experts.”); MOHAN MUNASINGHE AND JEREMY J. WARFORD, ELECTRICITY PRICING: THEORY AND CASE STUDIES, The World Bank (1982) (summarizing long-run marginal cost calculations and noting that “if the load or demand forecast and the plan for least-cost system investment are not prepared accurately, the marginal costs that are derived from those earlier calculations are also likely to be incorrect”); Anna P. Della Valle, Short Run versus long-run Marginal Cost Pricing, 10 ENERGY ECONOMICS, 283-286 (1988) (stating that “it is difficult to compute the long-run marginal cost of electricity production” because it “involves estimates of future capital, operation and maintenance and fuel costs as well as projections of demand, interest rates, and inflation”).

³¹ Bonbright, *supra* note 23, at 338.

³² Weston, *supra* note 27, at 50 (“In sum, we urge regulators to adopt pricing and rate-setting policies that will serve the longer term public interests: fairness, economic efficiency, competitive provision and innovation, and environmental protection.”).

³³ Southern Pac. Co. v. Railroad Comm’n of State of Cal., 194 Cal. 734, 739 (Cal. 1924) (“The fixing of a rate in the first instance is prospective in its application and legislative in its character.”); Application of Arkansas Louisiana Gas Co., 558 P.2d 376, 377 (Okl. 1976) (“The establishment of rates and the apportionment thereof among various groups of customers is a legislative function of the Commission.”); Colorado Ute Electric Association v. Public Utilities Commission, 198 Colo. 534, 602 P.2d 864 (Colo. 1979) (“As this Court has repeatedly emphasized, rate-making is not an exact science, but a legislative function involving many questions of judgment and discretion.”); American Can Co. v. Lobdell, 638 P.2d 1152, 1157 (Or. App. 1982) (“Rate-making is a purely legislative function, involving broad discretion in selecting policies and methods of allocating rates among classes of customers. Cost-of-service and LRIC are two permissible choices.”); Kansas Gas and Elec. Co. v. State Corp. Comm’n., 720 P.2d 1063, 1072 (Kan. 1986) (“[P]ublic utility rate making is a legislative function, whether it is regulated by an administrative body or by the legislature itself.”); Atlanta Gas Light Co. v. Georgia Pub. Serv. Comm’n., 442 S.E.2d 860, 864 (Ga. App. 1994) (“Rate-making is a highly technical task, heavily dependent on experts. It lies in the legislative domain.”); City of Chicago v. Illinois Commerce Comm’n., 281 Ill. App. 3d 617, 622 (1996) (“Matters of rate regulation are of legislative character and courts should not interfere with the functions and authority of the Commission so long as its order demonstrates sound and lawful analysis.”); Williston Basin Interstate Pipeline Co. v. Wyoming Pub. Serv. Comm’n., 996 P.2d 663, 667 (Wyo. 2000) (“This court cannot usurp the legislative function delegated to the PSC in setting appropriate rates.”).

³⁴ See Barbose, *supra* note 3, at 9 (stating that cross subsidies are “pervasive” providing examples of cross subsidies that are not related to DERs); Weston, *supra* note 27, at 36 ((listing demographic and geographic factors, including elevations, plant life, weather, and soil conditions, that contribute to variations in costs of distribution service); George Sterzinger, The Customer Charge and the Problem of Double Allocation of Costs, PUB. UTIL. FORTNIGHTLY 30, 31 (July 2, 1981) (“Distribution system costs . . . obviously depend to a great extent on geographical considerations – type of terrain and customer density.”).

³⁵ Ahmad Faruqi, The Ethics of Dynamic Pricing, 23 ELECTRICITY J. 13, 19 (July 2010).

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- ³⁶ Application of Nevada Power Company d/b/a NV Energy for Approval of a Cost-of-Service Study and Net Metering Tariffs, Order, (No. 15-07041) (Pub. Utils. Comm’n of Nev., Dec. 22, 2015) (concluding that net metering resulted in a \$28 million annual subsidy paid by non-net-metered ratepayers to net-metered customers); Application of Wis. Pub. Serv. Comm’n for Authority to Adjust Electric and Natural Gas Rates, Concurrence and Dissent of Commissioner Callisto, (No. 6690-UR-123) (Pub. Serv. Comm’n of Wis., Dec. 18, 2014) (characterizing under-collection due to net metering as “practically imperceptible”).
- ³⁷ Peskoe, *supra* note 29, at section II.B.
- ³⁸ Chris Schroeder & Alan Miller, The Validity of Utility Conservation Programs According to Generally Accepted Regulatory Principles, 3 SOLAR L. REP. 967, 1008 n. 89 (1981–1982) (citing Cal. Energy Comm’n, Energy Services Corporations: Opportunities for California Utilities, at 166–67 (1980))
- ³⁹ Memo from Phillip Moeller to The Honorable Travis Kavulla, NARUC President and Vice Chairman of the Montana Public Service Commission, Primer on Rate Design for Residential Distribution Generation, (Feb. 14, 2016), at section I.D.
- ⁴⁰ See Comments of the Institute for Policy Integrity on Staff White Paper on Benefit-Cost Analysis in the Reforming Energy Vision Proceeding, New York Public Service Commission Case 14-M-0101 (Aug. 21, 2015) (arguing that cost benefit analysis provides “the most analytically sound way to prioritize policy options in a resource-limited world”).
- ⁴¹ NARUC Cost Allocation Manual, *supra* note 28, at 12 and 22.
- ⁴² Bonbright, *supra* note 23, at 338.
- ⁴³ Draft Manual at 7.
- ⁴⁴ Ryan Randazzo, “SRP Board OKs Rate Hike, New Fees for Solar Customers.” The Arizona Republic (Feb. 27, 2015), <http://www.azcentral.com/story/money/business/2015/02/26/srp-board-oks-rate-hike-new-fees-solar-customers/24086473/>
- ⁴⁵ Complaint, SolarCity v. Salt River Project, N.D. Ariz., Case 15-CV-00375 (Mar. 2, 2015).
- ⁴⁶ Application of Nevada Power Company d/b/a NV Energy for Approval of a Cost-of-Service Study and Net Metering Tariffs, Order, (No. 15-07041) (Pub. Utils. Comm’n of Nev., Dec. 22, 2015)
- ⁴⁷ Toby Brown, Ahmad Faruqi, Lea Grausz, “Efficient Tariff Structures for Distribution Network Services.” Nov. 6, 2015, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2687327.
- ⁴⁸ See generally David P. Baron and Roger B. Myerson, Regulating a Monopolist with Unknown Costs, 50 ECONOMETRICA 911 (July 1982) (discussing the optimal regulatory policy given the information asymmetry between a regulator and the regulated firm).
- ⁴⁹ See, e.g. Inter-County Rural Electric Cooperative Corporation v Public Service Commission of Kentucky, 407 S.W. 2d 127, 130 (KY 1996); In re Application of Hawaiian Elec. Co., Inc., 56 Haw. 260, 262-263, (1975) (holding that intervention is “a matter resting within the sound discretion of the commission”); Attorney General v. Department of Public Utilities, 390 Mass. 208, 216-217 (1983) (stating that the issue of “participation as a party was within the broad discretion of the department”); In re Investigation and rulemaking into rules of practice and procedure, 2001 WL 34006147 (Nev. Pub. Serv. Comm’n., June 26, 2001) (stating that the “[t]he purpose and intent of this investigation and rulemaking is to simplify such practice before the Commission, increase administrative efficiency, and encourage public participation” (emphasis added)).
- ⁵⁰ See Order on Petition for Leave to Intervene of SolarCity, NV PUC Docket No. 16-07029 (Aug. 29, 2016); Order No. 33751, HI PUC Docket No. 2015-0389 (Jun. 8, 2016); Hearing Officer’s Rulings on Petitions to Intervene, MA DPU, Dockets No. 15-120, -121, -122 (May 26, 2016) (appeal pending); Order on Petition for Leave to Intervene, NV PUC Docket No. 16-02006 (Apr. 4, 2016); Procedural Order, AZ ACC Docket No. E-01345A-1 1-0224 (Mar. 17, 2016).
- ⁵¹ Alexandra B. Klass and Elizabeth J. Wilson, Energy Consumption Data: The Key to Improved Energy Efficiency. 6 SAN DIEGO J. CLIMATE & ENERGY L. 69 (2014-15).
- ⁵² See, e.g. Decision Adopting Rules to Provide Access to Energy Usage-Related Data While Protecting Privacy of Personal Data, 2014 WL 1931946, CA PUC Docket No. 08-12-009 (May 1, 2014) (summarizing extensive proceedings on data access and relevant legal authority, and noting that the “Commission looks forward to a time in the future when individual customers’ energy data can be sufficiently protected to allow for a detailed model” of the state’s electric grid to be shared with DER providers).